

REMARKS

By the foregoing amendments informalities in the specification have been corrected. Claims 1-6 remain in the application.

The disclosure was objected to in the outstanding Office Action because of informalities on pages 2, 14, 16, 17, 19 and 21 as set forth in paragraph number 1 on page 2 of the Office Action. Responsive to this objection, by the above amendments the Substitute Specification has been amended to make appropriate corrections in the referenced misstatements and misspellings. In view of these changes, it is respectfully submitted that the disclosure is in proper form. Accordingly, reconsideration and withdrawal of the objection is requested.

Claims 1-5 were rejected in the Office Action under 35 U.S.C. §103(a) as being unpatentable over Hayashi, JP 2002-052659A, in view of Kageyama, JP 2002-307506A. The references were combined for the reasons and in the manner stated on pages 2-6 of the Office Action.

Claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hayashi in view of Kageyama, and further in view of Hamaguchi, JP 2003-192016A as stated on page 6 of the Office Action.

These rejections are hereby traversed and reconsideration thereof is respectfully requested in view of the remarks set forth below and Exhibits 1 and 2 attached in the Appendix.

The present invention is directed to an improved process for preparing a multilayer structure product involving feeding a saponified ethylene/vinyl acetate copolymer (hereinafter referred to as EVOH) and other resins to a melt-molding machine having a die. An EVOH resin tends to be constricted

with crystallization when once the molding machine is taken down and cooled because EVOH has many hydroxyl groups in its inner molecule. Then, empty space would occur in the molding machine. After this empty space is formed, the outside air flows into the empty space of the molding machine. Further, if there is an attempt to reheat the molding machine, the EVOH resin reacts with the entrained air and it becomes significantly degraded irreversibly.

Because of this, according to the present invention, it is necessary to hold the melt-molding machine at a temperature lower by 0 to 100°C than a melt-molding temperature. By holding the temperature range as recited in Applicants claims, it becomes possible to prevent the irreversible changing volume and its degradation.

The primary reference to Hayashi discloses a process for melt-molding EVOH but there is no disclosure in respect to holding the temperature of the molding machine as claimed in the present invention. This deficiency of Hayashi is admitted on page 3 of the Office Action. Kageyama only discloses a heat-retention temperature and its process. Further the invention described in Kageyama is without reference to EVOH. There are no disclosures in respect to holding the temperature of the melt-molding machine as claimed in the present invention. As mentioned above, EVOH resin has particular properties, that is, it has many hydroxyl groups in its inner molecule and has high crystallinity. Accordingly, EVOH resin tends to be degraded easily by heating in the atmosphere. For an explanation with examples, please see the attached reference document of Exhibit 1, 3 pages, entitled *Influence of Air on Heat Degradation*. The experimental condition is described on page 1 of Exhibit 1. The results of influence of air are shown on pages 2 and 3 of

Exhibit 1. As shown on page 2, it is apparent that a peak of hydroxyl group becomes lower than usual and a peak of carbonyl group higher than usual in the atmosphere. That is, the main chain of EVOH has been degraded. The color of EVOH resin has been significantly discolored.

As shown on page 3 of Exhibit 1, EVOH resin tends to be degraded and discolored more than polypropylene resin and adhesive resin (modified polyolefin resin with carboxylic acid).

A Declaration Under 37 C.F.R. §1.132 with examples of the present invention and comparative examples is enclosed as Exhibit 2 in the Appendix. See particularly the results and discussion on pages 6-8 of the Declaration which evidence the substantial reduction in the whole amount of resin used for purging with the present invention as compared with the comparative examples 1-3. The invention saves material, time and results in improved quality of the molded product, bottles in the examples, as compared with the comparative examples.


As mentioned above, EVOH resin has particular properties (that is, EVOH tends to be reacted with air, then constricted by crystallization and be degraded). The present inventors originally recognized these properties and problems and apply their mind to obtain the elements that “residing in the melt-molding machine at a temperature lower by 0 to 100°C than a melt-molding temperature”. The claimed invention is not obvious, 35 U.S.C. §103, by mere “routine experimentation” as alleged in the Office Action.

The secondary reference to Hamaguchi relied upon in the rejection of claim 6 does not provide for the aforementioned deficiencies and Hayashi and Kageyama.

In view of the above amendments and remarks and the accompanying exhibits 1 and 2, which include the Declaration Under 37 C.F.R. §1.132 by joint inventor Mr. Kaoru Inoue, reconsideration and allowance of claims 1-6 is requested.

Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (Case No. 512.46131X00) and please credit any excess fees to such deposit account.

Respectfully submitted,

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Appendix with Exhibits 1 and 2

APPENDIX